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10/038,223	10/23/2001	John William Short	17MY-7138	8622

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EXAMINER

LEROY, DAVID H

ART UNIT

PAPER NUMBER

1742

DATE MAILED: 03/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

10/038,223

Applicant(s)

SHORT, JOHN WILLIAM

Examiner

David H. LeRoy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 10-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-9, drawn to alloy carbon steel, classified in class 148, subclass 326.
 - II. Claims 10-18, drawn to a method for manufacturing alloy carbon steel, classified in class 148, subclass 502.

Inventions Group I and Group II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the product could be made by ... Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

During a telephone conversation with Gary M. Hartman on 1/21/03 a provisional election was made with traverse to prosecute the invention of Group 1, claims 1-9. Affirmation of this election must be made by applicant in replying to this Office action. Claims 10-18 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Objections

2. Claim 1 and 8 are objected to because of the following informalities:

The tense of "is tempered" in the last line of Claims 1 and 8 is used to refer to a product of tempering. A past tense such as "has been tempered" or "was tempered" would be appropriate.

Appropriate correction is required.

3. The disclosure is objected to because of the following informalities.

It appears that the U.S. Patent Number "3,754,601" on p. 7 [0017], p. 8 [0018], p. 9 [0020] should be "3,574,601".

If this is true, appropriate correction is required wherever the incorrect number appears.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Watanabe et al. U.S. Pat. No.4,227,923

4. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,227,923 to Watanabe et al.

Watanabe et al. teaches (See claim 1) a martensite steel alloy composition consisting of up to 0.05% C, up to 1.0% Si, up to 2.0% Mn, 5.0-8.0% Ni, 11.0-15.0% Cr, 1.0-4.0% Mo, 0.5-4.0% Cu, 0.5-2.0% Co; at least one component selected from the group consisting of up to 3.0% W, up to 0.01% B, up to 0.5% Ti, up to 0.5% V, up to 0.5% Nb, and up to 0.5% Ta; and the balance Fe and impurities. Watanabe et al. teaches the inclusion in their alloy of at least one component selected from the group consisting of 0.03-0.3% Pb, 0.01-0.20% Te, 0.002-0.020 Ca, and 0.03-0.40 Bi.

Watanabe's et al.'s composition ranges overlap the ranges, by weight, of 14.0-16.0% Cr, 6.0-7.0% Ni, 1.25-7.0% Cu, 0.5-1.0% Mo, 0.03-0.5% C, Nb content = 10-20 times C% (Note: 0.3-10% Nb), not greater than 1.0 % Mn, not greater than 1.0% Si, not greater than 0.1% V, not greater than 0.1% Sn, not greater than 0.03% N, not greater than 0.020% P, not greater than 0.025% Al, not greater than 0.008% S, not greater than 0.005% Ag, not greater than 0.005% Pb, and the balance being essentially Fe of the claimed invention. Therefore, since the claimed ranges "overlap or lie inside ranges disclosed by the prior art", a prima facie case of obviousness exists. See *In re Wertheim*, 541 F. 2d 257, 191 USPQ 90 (CCPA1976); *In re Woodruff*, 919 F. 2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). See MPEP 2144.05.

5. With respect to the claimed language of "consisting essentially of" in Claim 1, although Watanabe et al. teaches the presense of at least one of Pb, Te, Ca, and Bi, the 35 U.S.C. 103 rejection is proper because applicant has the burden of showing that the introduction of these elements would materially change the characteristics of applicant's invention (See *In re Delajarte* 337, F. 2d 870, 142 USPQ 256 (CCPA)).

6. With respect to the physical properties of Claims 1, 2 or 6, delta-ferrite content of Claims 1 or 6, ultimate tensile strength of Claim 1, or the Charpy impact toughness of Claims 1 or 2, these values would have been expected to be met by Watanabe et al.'s alloy, because Watanabe et al.'s alloy is substantially the same as the claimed alloy, therefore, the claimed properties would have highly been expected to one of ordinary skill in the art. See *In re Best* 195 USPQ 430, 433 (CCPA 1977) and MPEP 2112.01.

7. With respect to the temperature of tempering in Claim 1, the patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. (See MPEP 2113). Applicant has the burden to show the criticality of the tempering temperature on properties of the claimed stainless steel.

8. With respect to Nb content of Claim 3 of 10.0-15.0 times greater than the carbon content, this would be 10-15 times (0.03-0.5% C) or from 0.3-7.5% Nb. Watanabe's et al.'s alloy has a range of up to 0.5% Nb which overlaps or lies within the range of Nb of the claimed invention. Therefore, since the claimed ranges "overlap or lie inside ranges

disclosed by the prior art", a prima facie case of obviousness exists (See MPEP 2144.05).

9. With respect to the C content of Claim 4, Watanabe et al.'s alloys range of C overlaps or lies within the range of 0.03-0.04% C of the claimed invention. Therefore, since the claimed ranges "overlap or lie inside ranges disclosed by the prior art", a prima facie case of obviousness exists (See MPEP 2144.05).

10. With respect to the N content of Claim 5, in the '923 patent Watanabe et al.'s N content is 0 or considered an impurity since Watanabe et al. do not specifically list N content. However, Watanabe et al. would overlap or lie the range of not greater than 0.03% N of the claimed invention since this would include 0 or an impurity amount. Therefore, since the claimed ranges "overlap or lie inside ranges disclosed by the prior art", a prima facie case of obviousness exists (See MPEP 2144.05).

Watanabe et al. U.S. Pat. No.4,227,923 in view of Watanabe et al. U.S. Pat. No. 4,857,120.

11. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,227,923 to Watanabe et al. in view of U.S. Patent No. 4,857,120 to Watanabe et al.

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12. Watanabe et al. '923 does not teach a precipitation hardened stainless steel alloy in the form of a steam turbine component. It is well known in the art to use Chromium steel for steam turbine components as evidenced by Watanabe et al. in U.S. Patent No. 4,857,120. Watanabe et al. ('120) teach the use of Chromium Steels in steam turbine parts due to their high temperature strength (See Col. 1 lines 8-23) and the conventional use of Cr-Mo-V-Nb steel for blades and bolts of steam turbines (See Col. 1 lines 63-68). Therefore, it would have been obvious to one of ordinary skill in the art that the alloy of Watanabe et al. ('923) would be applicable to steam turbine components as taught by Watanabe et al. ('120). One of ordinary skill in the art would have been motivated to make the alloy of Watanabe et al. ('923) for steam turbine components since Chromium steels have high temperature strength required for steam turbine components as per the teachings of Watanabe et al. ('120).

13. With respect to the alloy composition of Claim 8, except for Mo, Watanabe et al.'s ('923) composition ranges overlap the ranges, by weight, of about 14.5% Cr, about 6.5% Ni, about 1.5% Cu, about 0.7% Mo, 0.03-0.4% C, Nb content = 10.0-20.0 times C% (Note: 0.3-4% Nb), about 0.3-0.8% Mn, about 0.2-0.5% Si, not greater than 0.05% V, not greater than 0.01% Sn, not greater than 0.030% N, not greater than 0.015% P, not greater than 0.020% Al, not greater than 0.0002% S, not greater than 0.0001% Ag, not greater than 0.0001% Pb, and the balance being essentially Fe of Claim 8 of the claimed invention. Therefore, except for Mo, since the claimed ranges "overlap or lie inside ranges disclosed by the prior art", a prima facie case of obviousness exists (See MPEP 2144.05). Comments under paragraphs 5-7 above apply to Claim 8 as well.

With respect to the Mo content, Watanabe et al.'s ('923) Mo content ranges of 1.0-4.0% (See Claim 1) is close to the Mo on content of the claimed invention of about 0.7% Mo, by weight. Therefore, since the claimed ranges "are close enough that one skilled in the art would have expected them to have the same properties", a prima facie case of obviousness exists (Titanium Metals Corp. of America v. Banner, 778 F.2d 775, 227 USPQ 773 Fed. Cir. 1985, (See MPEP2144.05).

14. With respect to the Charpy physical property recited in Claim 9, see paragraph 6 above.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Lewis P. Myers, Kermit J. Goda Jr. "A New High-Strength Stainless Suitable for Cryogenic Use"; Cryog. Technol., (1965) Vol.1 No. 6, pp.261-264 relates to a precipitation hardenable stainless steel known as Custom 455.

U.S. Patent No. 5,411,613 to Ritzk et al. relates to a martensitic precipitation-hardening stainless steel containing Nb.

U.S. Patent No. 5,496,421 relates to a martensitic stainless steel containing Nb and a delta-ferrite phase.

U.S. Patent No. 5,512,237 to Stigenberg relates to a precipitation hardenable martensitic stainless steel containing Nb.

U.S. Patent No. 5,599,408 to Fujita et al. relates to a Nb containing austenitic/martensitic stainless steel and the relationship of element amount to ferrite content.

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U.S. Patent No. 5824,265 to Dodd relates to a Nb containing stainless steel having martensitic, ferritic, and retained austenitic phases.

Inquiries

Any inquiry concerning this communication should be directed to David H. LeRoy at telephone number 703-305-5793. The examiner can normally be reached 7a.m.-5:30 p.m. Monday-Thursday. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King, can be reached at 703-308-1146. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-873-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

DL

3/24/03


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